

**Trends within the periodic table – Mark Scheme**

1. (a) (i) 9  
 (ii) 2.8.7 gas  
 (iii) liquid  
*each for 1 mark* 4
- (b) increase as go down the table/F → I/down group/  
 as more protons/as atoms get bigger  
*for 1 mark* 1
- (c) (i) reactions depend on taking/sharing electrons  
 same number of electrons in outer shell/highest energy level 4  
 (ii) F → I electrons in a higher energy level/further from nucleus  
 so less easy to gain/hold electrons  
*each for 1 mark*
- [9]**
2. (a) (i) W and Z (allow oxygen and sulphur)  
*for 1 mark*
- (ii) Group 6 2  
*for 1 mark*
- (b) W and Y (allow oxygen and nitrogen or correct symbol for any 2 gaseous elements) 1  
*for 1 mark*
- (c) (i) (S) produce an alkali/hydroxide *each*  
 produce hydrogen or idea of effervescence 3  
 (D) (alkali is) sodium hydroxide  
 the reaction is faster/more vigorous  
*any 3 for 1 mark*
- (ii) ideas that potassium is further down the group or more electron shells 3  
*gains 1 mark*  
**but** because the electrons in potassium are further from the nucleus/  
 in a more outer shell / in a higher energy level  
*gains 2 marks*  
 so they are most easily lost **or** less strongly pulled/held by nucleus  
*for 1 mark*
- [9]**
3. (a) transition / transitional metals / elements / d-block 1  
*for one mark*
- (b) coloured catalyst 2  
*(accept high melting point)*  
*for 1 mark each*
- [3]**